

WHAT IS CLAIMED IS:

1. An electrophoretic inorganic porous material,
comprising:

5 an inorganic separating media that has a plurality of
pores through which molecules migrate during an
electrophoresis process.

2. The electrophoretic inorganic porous material of
10 Claim 1, wherein said inorganic separating media is porous
glass.

3. The electrophoretic inorganic porous material of
Claim 2, wherein said porous glass is alkali borosilicate
15 glass.

4. The electrophoretic inorganic porous material of
Claim 2, wherein said porous glass has pores with an
average pore diameter greater than 100 angstroms.

20 5. The electrophoretic inorganic porous material of
Claim 1, wherein said inorganic separating media is a sol
gel monolith.

25 6. The electrophoretic inorganic porous material of
Claim 5, wherein said sol gel monolith has pores with an
average pore diameter greater than 100 angstroms.

7. The electrophoretic inorganic porous material of Claim 1, wherein said molecules are proteins.

8. The electrophoretic inorganic porous material of
5 Claim 1, wherein said molecules are nucleic acids.

9. An electrophoresis apparatus, comprising:
a power supply including a positive electrode and a
negative electrode; and
10 a buffer tank capable of supporting an inorganic
separating media that has a plurality of pores, said buffer
tank further capable of containing a buffer that covers the
inorganic separating media such that molecules migrate
within the plurality of pores when power is applied to the
15 positive electrode and the negative electrode both of which
are immersed in the buffer and located at opposite ends of
the inorganic separating media.

10. The electrophoresis apparatus of Claim 9, wherein
20 said inorganic separating media is porous glass.

11. The electrophoresis apparatus of Claim 10,
wherein said porous glass is alkali borosilicate glass.

25 12. The electrophoresis apparatus of Claim 10,
wherein said porous glass has pores with an average pore
diameter greater than 100 angstroms.

13. The electrophoresis apparatus of Claim 9, wherein said inorganic separating media is a sol gel monolith.

14. The electrophoresis apparatus of Claim 13,
5 wherein said sol gel monolith has pores with an average pore diameter greater than 100 angstroms.

15. The electrophoresis apparatus of Claim 9, wherein said molecules are proteins.

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16. The electrophoresis apparatus of Claim 9, wherein said molecules are nucleic acids.

17. A method for analyzing a biological sample, said
15 method comprising the steps of:

placing an inorganic separating media into an electrophoresis apparatus;

pouring a buffer into the electrophoresis apparatus to immerse the inorganic separating media;

20 inserting the biological sample into the inorganic separating media; and

applying power to the inorganic separating media such that molecules of the biological sample migrate within a plurality of pores formed within the inorganic separating
25 media.

18. The method of Claim 17, further comprising the steps of:

staining the biological sample; and
photographing the inorganic separating media to have a
5 record of the migrated molecules of the biological sample.

19. The method of Claim 17, wherein said inorganic separating media is porous glass.

10 20. The method of Claim 19, wherein said porous glass is alkali borosilicate glass.

21. The method of Claim 19, wherein said porous glass has pores with an average pore diameter greater than 100
15 angstroms.

22. The method of Claim 17, wherein said inorganic separating media is a sol gel monolith.

20 23. The method of Claim 22, wherein said sol gel monolith has pores with an average pore diameter greater than 100 angstroms.

24. The method of Claim 17, wherein said molecules
25 are proteins.

25. The method of Claim 17, wherein said molecules are nucleic acids.

26. The method of Claim 17, wherein said inorganic separating media enables a combination of mass spectroscopy and electrophoresis.

5 27. The method of Claim 17, wherein said inorganic separating media enables separation of proteins in western blots.

10 28. The method of Claim 17, wherein said inorganic separating media enables separation of proteins in 2-dimensional electrophoresis.

15 29. The method of Claim 17, wherein said inorganic separating media enables separation of DNA in dot blots.

30. The method of Claim 17, wherein said inorganic separating media enables miniaturized DNA sequencing.

20 31. The method of Claim 17, wherein said inorganic separating media enables electrophoresis under native and denaturing conditions.

25 32. The method of Claim 17, wherein said inorganic separating media is a component in a microscale total analysis system.